



EFFECTIVENESS OF CONCEPT CARTOON TASKS ANALYSIS FOR TEACHING SCIENCE

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Introduction

Cartoon Based Education is a fun based teaching approach which provides edutainment to students and students love to learn with. Concept Cartoons are cognitive drawings that use a cartoon-style design to present a particular concept. Tasks based on Concept Cartoon analysis provide the learners a motivation for learning. It can be useful to teachers of subjects like math, science, languages, environmental studies and many others. Emanuel S. (2007) states that, “the basic principle of using concept cartoons is to make the learners learn the way they wish to learn i.e. edutainment. The learners’ own observation is more important than the teacher’s words!” The present paper indicates how use of concept cartoon analysis tasks impact on secondary school students’ achievement.

Researches in the field of Concept Cartoons: Some Observations!

Carre (1993) states that results of past studies have shown that many of the student teachers do not have a strong science background and therefore perform badly on any initial examination of their subject knowledge.

Parker and Spink (1997) reveal that many of the student teachers don’t possess positive attitude to science. Cartoon based tasks help the learners to think instead of getting mere textual information.

Keogh, N. & Wilson (1998) state that, Concept cartoon approach is a teaching strategy which can be useful at various levels ranging from primary schools to higher education level. Researchers on Concept cartoon in science teaching state that teaching via concept cartoons incorporates each individual student’s ideas yet. In concept cartoon teaching, scientific ideas are presented in a form of cartoon-style drawing in a paper where cartoon characters say something in discussion/dialogue mode. Then, the learner is invited to join the debate with the cartoon characters.

Naylor, S. and Keogh, B. (1999) state that, ‘Concept cartoons stimulate learners to discuss their ideas, including those that are normally reluctant to do so.’ The adolescents’ are in a ‘turmoil age’ wherein they exhibit characteristics like emotional changes, physical changes, difficulty to accept others’ view points, aggressive nature, self-identity crisis, etc. Thus, the use of Cartoon Based Education can be of key

importance to these students group. Here they get opportunity to observe, think, interpret as well as voice out their views.

Brenda and Naylor, S. (2000) indicated that 69% student teachers agreed that use of concept cartoons helped them to think differently about the situations and to begin the process of restructuring their understanding. The study further reveals that the questions on cartoon tasks helped student teachers to be more open-minded and gave learners new ways of looking at the situations.

Chris Joyce (2006) states Concept Cartoons teaching strategy is based on Constructivism theory. Cartoon-style drawings incorporates a range of viewpoints from students about a concept. It creates a condition called "cognitive conflict" among students which generates conditions for learning readiness and intellectual discourse.

Researches mentioned above indicates the concept cartoons make a positive impact on learners and also increase learners' motivation and involvement in classroom.

Statement of the Problem

Development of Concept Cartoon Analysis Tasks for Teaching Science at Secondary School Students of Surat city

Objectives of the Study

1. To develop Concept Cartoon Analysis Tasks for Teaching Science.
2. To implement the Concept Cartoon Analysis Tasks on Secondary School Students.
3. To determine the effectiveness of Concept Cartoon Analysis Tasks in terms of
 - (a) Achievement of students
 - (b) Opinion of students towards the Concept Cartoon Analysis Tasks.

Hypothesis

There will be no significant difference in the mean achievement scores of students in Pretest and Posttest.

Design of the Study

A single group pretest posttest design was adopted. It was a developmental cum experimental study and conducted in three phases.

Phase 1: Development of Concept Cartoon Analysis Tasks for teaching Science.

Phase 2: Implementation of Concept Cartoon Analysis Tasks in the classroom.

Phase 3: Determining the effectiveness of Concept Cartoon Analysis Tasks.

SAMPLE OF THE STUDY

From all CBSE English Medium Schools of Standard IX of Radiant School purposively selected. In the selected school 20 students were randomly selected from standard IX.

The Experiment and Methodology

For the experiment, concept cartoons related to science (concept: Food and Nutrition) were found from the internet. Then, a set of instructions was prepared by the investigator to enable the students to understand the cartoon. All the concept cartoons were related to the core teaching points in the chapter Food and

Nutrition. These cartoons were printed on a paper in the form of a worksheet and concept cartoon analysis tasks were assigned to the secondary school students in pair and group work. The students were made to observe, think, analyze, interpret, write and share their views about the concept cartoons in groups/among class during the experiment.

Tools for Data Collection and data analysis procedure

The tools used for data collection were Achievement Test, Focused group discussion, observation schedule and response sheet of students. The data was quantitatively and qualitatively analyzed using t test and content analysis technique respectively.

TABLE – 1

Values of Pretest and Post test mean , Standard Deviation (SD) , Coefficient of Correlation (r) , ‘t’ value, and its significance for Cartoon Analysis Tasks (n=18)

Mean		SD		R	‘t’(value)	Df	Level of Significance
Pre test	Post test	Pre test	Post test				
13.45	20.44	2.30	1.51	0.24	10.50	17	.01 level

It is evident from table 2 that the ‘t’ value of 10.50 for 17 degrees of freedom is significant at 0.01 level as the observed value of ‘t’ that is 10.50 is greater than the expected value of t at 0.01 level of significance, that is 2.90, so the null hypothesis that there will be no significant difference in the mean achievement scores of students in pretest and posttest is rejected. So it can be concluded that there is a significant difference in the mean achievement score of students in pretest and posttest. It can also be observed from the table 2 that the posttest mean is significantly higher than the pretest mean. Thus, there is a significant gain in terms of student’s achievement through Concept Cartoon Analysis tasks on ‘Food and Nutrition’.

Findings and Implications of the Study

The data analysis revealed that students enjoyed the cartoon observation tasks and analysis. The post task feedback included comments of the students. The comments made by students included statements like “initially it seemed to be a difficult task”, “I could not explain the concept depicted in cartoon completely” and “I got confused”. However, the students expressed that after getting help and guidance from the teacher they could explain the cartoon situation/ scientific concept. In addition comments like “Difficult but enjoyable task” and “user friendly way of learning science”, “we loved the cartoons and understood the teaching”.

The data analysis also indicated that the use of cartoon analysis tasks enabled the students to think 'out of the box' and go beyond the textual information. Students had to think, discuss, question and observe during the entire session and thereby remained active in class throughout. The classroom interaction was found more learners friendly. The students looked relaxed and enjoyed the discussion among their groups. This made them discuss confidently, express their views openly, show their agreements and disagreements freely, discuss the views other members critically, restructuring their understanding, and think logically. This approach helped made them to be independent thinkers and creative. Almost all the students showed positive attitude towards the concept cartoons as a new teaching learning approach.

Moreover, the field based experiences and observations also signified that the technique has potentially good impact on students' achievement and motivation.

To conclude, the cartoon analysis can be proved effective in teaching-learning process. The investigator also realized that it can also be used as an assessment tool in science classrooms.

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